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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/045,652

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Stephen A. Thomas

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EXAMINER

BELLO, AGUSTIN

ART UNIT

PAPER NUMBER

2633

DATE MAILED: 10/05/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/045,652

Applicant(s)

THOMAS ET AL.

Examiner

Agustin Bello

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zheng (U.S. Patent No. 6,611,522).

Regarding claims 1, 24, 25, 27, and 30, Zheng teaches an optical network system comprising: an optical tap routing device (reference numerals 94, 96 in Figure 7), a plurality of optical tap multiplexers (reference numeral 130, 132, 134, 136, and 138 in Figure 9) for receiving downstream packets (reference numeral 150 in Figure 9) from the optical tap routing device, wherein each multiplexer comprises a final stage for controlling bandwidth of the downstream packets in the electrical domain (e.g. via the classifiers and policers of the invention), the optical tap routing device determining which downstream packets are sent to a respective multiplexer (e.g. according to ATM or IP in Figure 7), each optical tap multiplexer comprising: a plurality of classifiers (reference numeral 120 in Figure 8) for determining type of information contained in a downstream packet and for assigning a downstream packet to a particular policer (reference numeral 122 in Figure 8), and a plurality of policers (reference numeral 122 in Figure 8) for controlling bandwidth based upon a comparison between parameters assigned to each policer by a network provider and a downstream packet. Zheng differs from the claimed invention in that Zheng fails to specifically teach laser transmitters

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coupled to the multiplexers, wherein each multiplexer is coupled to and modulates a respective laser transmitter. However, Zheng clearly teaches optical transmitters (reference numeral 71 in Figure 5), optical fibers (reference numeral 108 in Figure 7), and buffers (reference numeral 146 in Figure 9) which feed packets to the transmitters. These disclosed features and the OC-48 nature of the invention suggests the use of laser transmitters within the system. Furthermore, the use of laser transmitters is very well known in the art of optical communication and Official Notice is given that they are well known in the art. One skilled in the art would have been motivated to employ laser transmitters in the device of Zheng in order to take advantage of a laser's ability to produce coherent light that can travel a great distance. Therefore, it would have been obvious to one skilled in the art at the time the invention was made to include laser transmitters in the device of Zheng.

Regarding claims 2 and 31, Zheng teaches that the parameters assigned to each policer comprise at least one of a peak rate, a burst size, and a sustained rate (column 21 lines 21-23).

Regarding claims 3 and 28, Zheng teaches that each policer controls bandwidth by assigning a weighted early random discard value to the packet (e.g. inherent in the use of Random Early Detect elements and method described in column 4 lines 51-59).

Regarding claim 4, Zheng teaches that each optical tap multiplexer further comprises a plurality of output buffers (reference numeral 136, 148 in Figure 9) for storing at least one downstream packet received from a respective policer.

Regarding claim 5, Zheng teaches a plurality of output buffers (reference numeral 138, 146 in Figure 9), each output buffer having an assigned priority value that is associated with an output buffer emptying sequence (column 5 lines 40-48).

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Regarding claims 6 and 26, Zheng teaches that each output buffer evaluates a packet with a random early discard function that employs the weighted early random discard value (column 15 lines 11-14).

Regarding claims 7 and 29, Zheng teaches that the weighted early random discard value comprises a maximum drop probability value (inherent in the Random Early Detect method taught by Zheng).

Regarding claims 8, 22, 32, and 33, Zheng teaches a plurality of output buffers (reference numeral 138, 146 in Figure 9), each output buffer executes a random early discard function for a packet when an output buffer average volume is between a minimum and maximum threshold (column 15 lines 11-14), the random early discard function employing the maximum drop probability value (inherent in the Random Early Detect method taught by Zheng).

Regarding claim 9, Zheng teaches that parameters assigned to a policer correspond with a bandwidth subscription of a subscriber (QoS throughout Zheng).

Regarding claim 10, Zheng teaches that the bandwidth subscription measures a predetermined amount of a data to be received by a subscriber in bits per second (inherent).

Regarding claims 11 and 23, Zheng teaches that one of the classifiers evaluates a differentiated service code point (DSCP) value of each downstream packet (column 16 lines 6-33).

Regarding claim 12, Zheng teaches that each classifier and each policer comprises one of a Field programmable gate array (FPGA) and an application specific integrated circuit (ASIC) (column 10 line 65 - column 11 line 5).

Regarding claim 13, Zheng teaches classifying a downstream packet by evaluating a header of the packet (e.g. via classifier reference numeral 120 in Figure 8); determining if the downstream packet matches at least one of rate and size parameters (e.g. via policer reference numeral 122 in Figure 8); assigning one of two priority values to the downstream packet based upon the determination if the downstream packet matches one of rate and size parameters (e.g. according to QoS requirements); and determining whether to store a downstream packet in one of a plurality of buffers (reference numeral 138, 146 in Figure 9) based upon a weighted random early discard function that employs one of the priority values (e.g. inherent in the use of Random Early Detect elements and method described in column 4 lines 51-59).

Regarding claim 14, Zheng teaches determining whether a downstream packet exceeds a sustained rate; and determining whether a downstream packet exceeds a burst size (e.g. via policer reference numeral 122 in Figure 8).

Regarding claim 15, Zheng teaches executing a token bucket algorithm to measure the sustained rate (column 21 lines 21-33).

Regarding claim 16, Zheng teaches determining if a downstream packet exceeds a peak rate; and discarding a downstream packet if the downstream packet exceeds the peak rate (e.g. via policer reference numeral 122 in Figure 8).

Regarding claim 17, Zheng teaches the step of executing a token bucket algorithm to measure the peak rate (column 21 lines 21-33).

Regarding claim 18 and 19, Zheng teaches that the step of assigning one of two priority values to a downstream packet comprises the step of assigning a maximum drop probability

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value to the downstream packet, wherein the maximum drop probability value based upon a determination of whether a packet matches sustained rate (column 12 lines 15-40).

Regarding claim 20, Zheng teaches that the communication traffic profile comprises one of a minimum bandwidth that a class or group of classes of subscribers is assured of receiving and a maximum bandwidth the subscriber can use over a time period (e.g. QoS throughout Zheng).

Regarding claim 21, Zheng teaches the step of removing one or more packets from a plurality of output buffers in a predetermined order that corresponds with priority assignment given to each buffer relative to other buffers. (column 5 lines 40-48).

Response to Arguments

Applicant's arguments filed 3/18/05 have been fully considered but they are not persuasive. The applicant argues that Zheng fails to specifically teach that each multiplexer comprises a final stage for controlling the bandwidth of the downstream packets in an electrical domain. However, the examiner has provided that the classifiers and policers of Zheng's invention provide this function. Furthermore, the term "final stage" is a relative term which does not distinguish the claimed invention from that of Zheng and leads to questions such as "final relative to what?" Given that the classifiers and policers of Zheng are the only elements which handle the bandwidth of the downstream packets, they can be considered the first and final stages of bandwidth controllers.

3. In response to applicant's argument that Zheng does not provide any teaching of classifiers that assign a downstream packet to a particular policer, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and

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the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Conclusion

4. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Agustin Bello whose telephone number is (571) 272-3026. The examiner can normally be reached on M-F 8:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571)272-3022. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AB


AGUSTIN BELLO
PATENT EXAMINER